

REMARKS**35 U.S.C. §112, second paragraph**

Claims 1-17 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Original claims 6(1) and 6(2) have been renumbered 6 and 7, and the remaining claims renumbered accordingly.

In regard to the rejection of claim 1, clarification as to the layer thickness being "relative to the diffusion rate of the co-reacting agents." It is asked if this simply requires that the layer thickness be such so that the agents can fully diffuse to fully cure the layers. This is correct. It is asserted, especially in light of cited teachings of Harrison in the 103 rejection who describes a very similar thickness determination, that one skilled in the art would readily appreciate that this does not require any specific thickness range. For a fast diffusing agent, the layer may be relatively thin, while for a slow diffusing agent, the layer may be thicker to ensure a higher percentage of curing agent.

Claim 4 has been amended to clarify that the adjacent layers are those of the uncured component (22).

Claim 16 (formerly 15) has been amended to remove any confusion regarding heating of the tread strip.

Claims 3-10 have been amended to remove the recitation of "the improvement" for which there was no antecedent basis.

35 U.S.C. § 102(b)

Claims 1, 3-5, 7, 8 and 10 have been rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 795397 to Goodyear. This rejection is respectfully traversed for the following reasons.

The rejection of the claims over EP 795397 presumes that in the context of the original claim and that which is taught by EP 795397, that the outermost uncured layers of the multi-layered article disclosed by EP 795397 is the equivalent of the uncured layers to be bonded together by the multiple layers as recited herein.

The amendments to claim 1 render this rejection moot. EP 795397 fails to teach or appreciate the use of multiple layers to bond cured elastomeric layers together, as presently

recited.

Claims 1, 3, 4, 6(2), 7 and 10-14 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brodie (U.S. 3,951,720). This rejection is respectfully traversed for the following reasons.

Brodie discloses, in one alternative of the invention, that the sheets of bonding material containing both the vulcanizing agent and the accelerator can be made by plying up one half the thickness of the layer containing only the vulcanizing agent and the other half containing accelerator ingredients.

The amendment to claim 1 renders this rejection moot, as claim 1 recites at least eight alternating layers. Brodie only discloses 2 layers of material.

Claims 1, 3, 4, 6(1), 6(2), 7 and 10-14 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Carver (U.S. 3,136,673). This rejection is respectfully traversed for the following reasons.

Carver discloses 2 layers of material wherein a thick layer of cushion gum 9 containing a reacting material is applied to the underside of a tread strip 8 and cement layer 7 contains the other reacting material.

The amendment to claim 1 renders this rejection moot, as claim 1 recites at least eight alternating layers; Carver discloses only 2 layers.

35 U.S.C. § 103

Claims 15-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Carver (U.S. 3,136,673) as applied above, and further in view of Taylor (U.S. 4,149,926). This rejection is respectfully traversed for the following reasons.

This rejection is based upon the 102(b)/103 primary rejection of claim 1 over Carver. This rejection has been rendered moot; thus destroying any rejection dependent thereon. Taylor fails to make up for the deficiencies noted above in the 102(b)/103 rejection of claim 1 over Carver.

Claims 1-14 and 17 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Brodie (US 3,951,720) or Carver (US 3,136,673) taken in view of Harrison et al. (US 1,434,892) and EP 795897 to Goodyear. This rejection is respectfully traversed for the

following reasons.

Brodie and Carver are applied herein in the same manner as applied in the 102/103 rejections.

Harrison and EP '397 are applied for the teachings of multiple alternating thin sheet layers wherein the curatives are placed in the alternating layers. Harrison is noted in the rejection as teaching the alternating thin sheets to address the problem of premature cure in rubber mills and/or calendars.

It is held as obvious to modify Brodie or Carver in light of the teachings of Harrison and EP to improve cure uniformity. Applicants respectfully disagree.

Brodie is already directed to the problem of premature curing; see col 2, lines 9-16, col 3, lines 6+. The mixing order, mixing times and temperatures are already strictly controlled so as to prevent premature curing during mixing and during storage. In the one comment wherein Brodie discloses splitting the cure package "to provide greater storage life," the negative of a "slightly lower rate of cure during the bonding operation" is indicated.

While not precisely clear, a "lower rate of cure" would indicate that the retreading operation using the split cure elastomer layers takes longer than for a single elastomer retreading operation. A longer retreading cure time exposes the cured tire carcass and the cured tire tread strip to longer heat life profile; actually decreasing the life of the carcass since the carcass, though designed for multiple retreads, can be subjected to only so much cure time before the useful life of the carcass is depleted. Thus, while a split cure package is disclosed, Brodie actually appears to teach away from its use. One skilled in the art reading Brodie would not be inclined to use the teachings of Harrison to further increase the number of layers.

Harrison teaches that the multiple layers may it permissible to vulcanize "at moderate temperatures far below that ordinarily used." In the one example provided, four layers are cured at 150° F for twenty hours. This is an exceedingly long time for curing a retread tire, and would substantially impact any kind of a profitable business. Brodie already is quite specific about mixing temperatures and curing temperatures (of less than about 300°) in order to achieve the desired long shelf life and prevent premature curing. Without undue experimentation to determine if the "moderate temperature" of Harrison would be successful with the split cure packages of Brodie, one skilled in the art would not find it readily obvious to use multiple layers for curing the tread to the tire carcass. Furthermore, substituting the teachings of Harrison in Brodie would result in extremely long cure times, seriously

impacting any business, and introduce long heat profiles to a tire carcass thereby reducing the tire carcass life.

In regards to Brodie, EP '397 adds nothing but teaches that multiple layer is known. Brodie still has negative teachings about the use of even two alternating layers of material; disinclining one in the art to increase the number of alternating layers.

Carver discloses that the split cure layers are provided in the cushion gum 9 and the strip material 7. The two layers are not joined until time of retreading. Applying the cushion gum 9 "as a preformed layer on the inner surface of the tread strip has the advantage that a uniform coating may be applied at the factory for use in the field" (col 3, lines 15-18). One of the principals goals of Carver is shelf life of the retreading material, i.e. the tread strip with the integral layer 9 and the gum strip 7, and ease of retreading by tire distributors and other non-factory retreaders.

To substitute the two simple layers 7, 9 of Carver with the multiple layers disclosed by Harrison or EP '397 defeats one of the primary goals of Carver – to have a product that can be easily used in the field. If Carver is modified, would one substitute the single layer 9 or the strip material with multiple layers, would the tire distributor or field retread be the one applying the many layers. Having multiple layers defeats Carver's goal.

More problematic would be the concern about shelf life of the prelayered product, as Harrison teaches curing at 150° F – temperatures that can be easily reached during storage and shipping if care is not taken. Thus the desire for shelf life in Carver as modified by Harrison would also be defeated.

Given these issue, contrary to the rejection, one skilled in the art would not find it obvious to substitute the two layers of Carver for the multiple layers of Harrison or EP '397 since it defeats the goals of Carver and creates more issues for the retread than it solves.

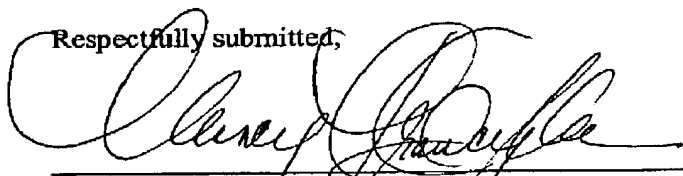
To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. Graham v. Deere. Both rejections, Brodie modified by Harrison or EP '397 and Carver modified by Harrison or EP '397, fail to meet all three requirements. For both rejections, there is negative motivation to combine the references in the primary references, and there is no reasonable expectation of success.

As Brodie or Carver in view of Harrison and EP '897 fails to establish *prima facie* obviousness of the invention as recited in claims 1-14 and 17, it is respectfully requested that

the rejection be withdrawn.

In light of this amendment, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

Respectfully submitted,


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